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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,600	03/30/2001	David Chong Sook Lim	17732-3856000	6055

7590 03/26/2003

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EXAMINER

ANDUJAR, LEONARDO

ART UNIT PAPER NUMBER

2826

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,600

Applicant(s)

SOOK LIM ET AL. *elm*

Examiner

Leonardo Andújar

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-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-44 is/are pending in the application.
- 4a) Of the above claim(s) 25-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-24 and 32-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/14/2002 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the fourth contacts arranged to make electrical connection to a printed circuit board must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Election/Restrictions

3. Claims 25-31 and 38-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention (method claims), there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 19 and 32 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not contain any disclosure regarding third contacts and/or electrically conductive wires joining second contacts to thirds contact. Also, the specification does not disclose that the substrate further comprises a package arranged to receive a die up die.

7. Claims 18, 19 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 18 and 32 do not provide a proper definition of "a die down" and "a die up" orientation. Therefore, an accurate structural relationship of the contacts with the rest of the structure cannot be established. Moreover, it is not clear which are the structural differences between "a die down die" and "a die up die". Also, it is not clear if applicant is claimed a substrate that contains one or two dies.

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8. Claim 18 recites the limitation "the electrical leads" in line 5. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 19 recites the limitation "the second contact on the substrate" in line 6. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 32 recites the limitations "the electrical contacts of the die down die" in lines 4 and 5, and electrical lead in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 18-21, 23, 24, 32-34, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuhn (US 5,793,101).

13. Regarding claim 18 (as understood), Kuhn (see attached figure 2) shows a package having a substrate (21, 20, 27) comprising a plurality of leads conductive leads (the wiring of the circuit 27) defining first contacts 1 which are arranged to accept electrical connections from the electrical contacts of a die down die 23. Also, Kuhn shows second contacts 2 which are arranged to correspond to a die up die 22.

14. Regarding claim 19 (as understood), Kuhn shows electrically conductive wires 31a joining electrical contacts of the die down die to the first contacts on the substrate. Also, Kuhn teaches that the substrate includes third contacts 3 which are arranged to

make electrical connection to the die up die 22, and electrical conductive wires 31b joining the second and the third contacts.

15. Regarding claim 20, Kuhn discloses that the substrate includes a lead frame 21 wherein the third contacts are formed as part of the lead frame. Also, the lead frame defines fourth contacts to make electrical connection to a printed circuit board (col. 1/lis. 14-27).

16. Regarding claim 21, Kuhn discloses that the die down die 23 is attached to the substrate by a non-conductive means such as epoxy (col. 5/ll. 10).

17. Regarding claim 23, Kuhn discloses that the die down die is an integrated circuit (col. 4/lis. 38-51).

18. Regarding claim 24, Kuhn discloses that the die down die includes components attached to the die down die (e.g. pads 25).

19. Regarding claim 32 (as understood), Kuhn (see attached figure 2) shows a package having a substrate (21, 20, 27) comprising a plurality of conductive leads (the wiring of the circuit 27) defining first contacts 1 which are arranged to accept electrical connection from the electrical contacts of a die down die 23, and second contacts 2 which are arranged to correspond to a die up die 22. Also, the Kuhn shows third contact leads 3, and electrical connections 31b connecting the third and second contacts.

20. Regarding claim 33, Kuhn discloses that the package includes a lead frame 21 wherein the third contacts are formed as part of the lead frame. Also, the lead frame

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defines fourth contacts to make electrical connection to a printed circuit board (col. 1/lls. 14-27).

21. Regarding claim 34, Kuhn discloses that the die down die 23 is attached to the substrate by a non-conductive means such as epoxy (col. 5/ll. 10).

22. Regarding claim 36, Kuhn discloses that the die down die is an integrated circuit (col. 4/lls. 38-51).

23. Regarding claim 37, Kuhn discloses that the die down die includes components attached to the die down die (e.g. pads 25).

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. Claims 22 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn (US 5,793,101) in view of Harper.

26. Regarding claims 22 and 35, Kuhn discloses most aspects of the instant invention including a substrate 27 comprising an insulating material (col. 4/lls. 27). Kuhn does not disclose which specific material can be used as insulating material. Harper discloses that polyimides (organic and insulating) are extensively used in the electronic industry because they have good heat resistance and good electrical properties at high temperatures (page 1.9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the Kuhn's substrate

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of polyimide (organic and insulating) in order to provide an insulating material having good heat resistance and good electrical properties at high temperatures as taught by Harper.

Conclusion

27. Papers related to this application may be submitted directly to Art Unit 2826 by facsimile transmission. Papers should be faxed to Art Unit 2826 via the Art Unit 2826 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2826 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2826 Fax Center is to be used only for papers related to Art Unit 2826 applications.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Leonardo Andújar** at **(703) 308-0080** and between the hours of 9:00 AM to 7:30 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Leonardo.Andujar@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn, can be reached on (703) 308-6601.

29. Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 305-3900**.

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The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass (es): 257/678, 693 and 697	03/03
Other Documentation:	
Electronic Database(s): East (USPAT, US PG PUB, JPO, EPO, Derwent, IBM TDB)	03/03

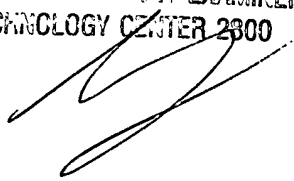
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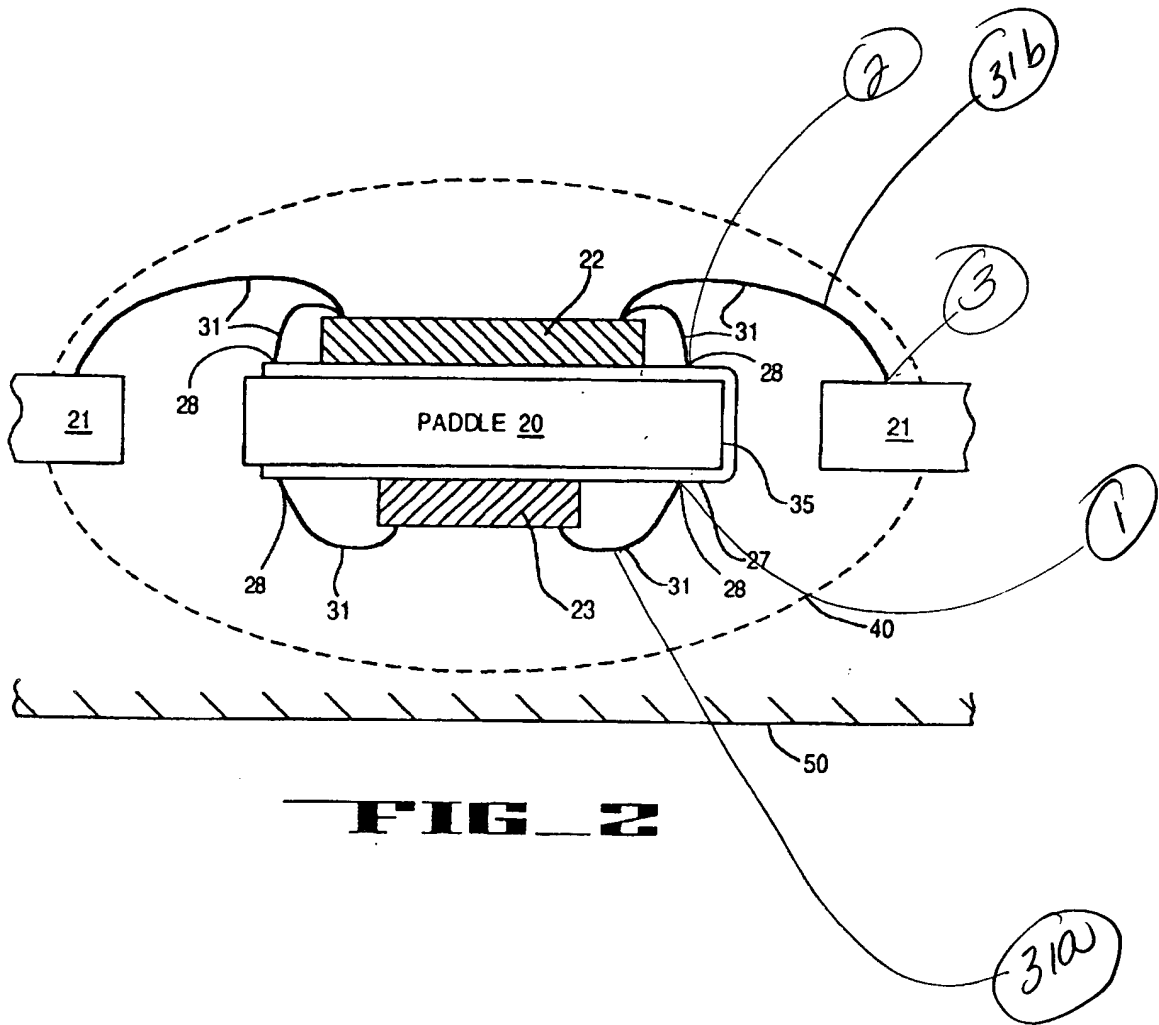
Patent Examiner Art Unit 2826

LA

3/19/03

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SUPERVISORY PATENT EXAMINER
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Attachment to Paper No. 18